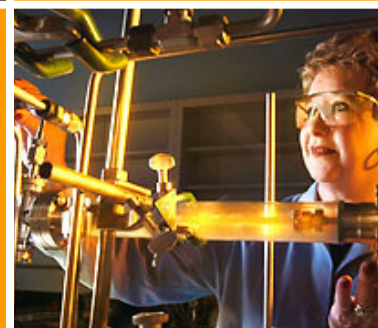




The Office of Fossil Energy: Striving for Environmental, Security, Safety and Health Excellence

Annual Report Fiscal Year 2003



Office of Environment,
Security, Safety and Health

Office of Fossil Energy Commitment to Environment, Safety and Health: FY 2003

We are committed to conducting our mission to achieve the greatest benefit for all our stakeholders, including our employees and the public, while actively adhering to the highest applicable standards for environment, safety and health (ES&H). We will continuously improve our practices through effective integration of ES&H into all facets of work planning and execution. We will make consistent, measurable progress in implementing this Commitment throughout our operations while striving to eliminate injuries, incidents, and environmental releases.

Implement Integrated Safety Management

- We will strengthen our mission by making ES&H an integral part of all mission activities. We will employ the Department's policies on Integrated Safety Management to provide an integrated standards-based approach for the integration of ES&H into all elements of program management.

Strive to Eliminate Injuries and Incidents

- We believe that injuries and occupational illnesses, as well as safety and environmental incidents, are preventable. We will strive to eliminate injuries and incidents, and will establish annual site-specific objectives to drive FE towards this goal.
- Should an incident occur, we will investigate to understand the cause, implement corrective actions, and apply lessons learned to prevent further incidents.
- We will assess the environmental impact of each facility we operate and will design, build, operate and maintain all of our facilities so they are safe and meet all applicable requirements.
- We will be prepared for emergencies and will assist our local communities to improve mutually supportive emergency preparedness capabilities.

Promote Environmental Protection and Pollution Prevention

- We will take all reasonable and responsible actions to prevent environmental releases, giving priority to those that may present the greatest potential risk to health or environment.
- We will reuse and recycle materials to minimize the need for treatment or disposal and to conserve resources. Where waste is generated, it will be handled and disposed of responsibly.
- Where past environmental practices have created conditions that require correction, we will responsibly correct them.

Adopt Highest Applicable Standards of Performance

- We will adhere to the highest standards that are applicable to the safe operation of our facilities and the protection of our workers, the public and the environment in which we operate.
- In addition to compliance with Federal, state and local environmental, safety and health requirements, we will engage in practices tailored to our work and the associated hazards to ensure the necessary protection.
- We will strive to identify all risks associated with work in the planning stage and implement strategies to achieve an acceptable minimum level of risk.

Ensure Management and Employee Accountability

- All FE managers will ensure that policies are in place, clear assignments of authority and accountability are established, and actions taken to achieve this Commitment.
- Compliance with this Commitment and applicable requirements is the responsibility of every Department of Energy employee, contractor and sub-contractor acting on our behalf and a condition of their employment or contract. The goals and expectations will be reflected in contractor incentives and Department of Energy personnel evaluations.
- FE management is responsible to educate, train and motivate employees to understand and comply with this Commitment and applicable requirements.
- We will allocate necessary resources to meet this Commitment and will do so in a manner that strengthens our mission. We will share ES&H expertise and information across programs to ensure cost-effective performance improvement.

Encourage Worker Participation

- Active worker participation is considered essential to meet this Commitment. Workers must be involved in reviewing work activities, identifying associated risks and implementing corrective measures.
- Workers will be given access to ES&H information, encouraged to report unsafe acts without retribution, encouraged to provide input to ES&H policy and to stop work when hazardous conditions or circumstances place workers in imminent danger.

Facilitate Public Participation

- We will have open discussion with our stakeholders on our work and its impacts on their environment, safety and health.
- We will build alliances with governments, policy makers, businesses, professional societies, academic institutions and advocacy groups to develop sound policies and practices that improve environment, safety and health.

Address from the Secretary

December 2003




An essential component of the Department of Energy's (DOE) mission is to advance the national economic and energy security of the United States. President Bush has tasked the men and women of the Department's Office of Fossil Energy (FE) to play a critical role in carrying out this mission by promoting a diverse supply of reliable, affordable, and environmentally sound energy.

In implementing our critical energy security functions, it is imperative that we work to protect our workers, the public, and the environment. I am proud to report on the progress that FE has made in delivering on the Department's commitment to perform this mission in a secure, safe, and environmentally responsible manner.

Our goal is to promote energy security for our country. FE is developing new technologies for FutureGen, an emission-free coal power plant of the future, allowing the United States to tap the full potential of the Nation's plentiful domestic coal supply. New exploration, development, and production processes are being developed that can keep U.S. oil fields producing into the future. In addition to researching and developing energy technologies, FE is also responsible for operating: (1) the Strategic Petroleum Reserve, which provides emergency oil supplies in the event of a severe supply disruption; and (2) the Northeast Home Heating Oil Reserve, which helps to ensure adequate heating oil supplies in the event of a severe energy disruption.

In performing this mission, FE is leading the way in effectively integrating security and safety into daily work activities. Security and emergency management programs have been enhanced to meet heightened security conditions. Accident rates are at their lowest levels, and many sites completed the year with no lost workdays. FE has strengthened the focus on behavior safety, and we are seeing dramatic reductions in at-risk behaviors. In the environmental area, FE is making progress in achieving the Department's 2005 goals for pollution prevention, and through its remediation activities and innovative design initiatives, FE's environmental footprint is shrinking. In addition, the Office has worked actively with external regulators and environmental organizations in establishing effective management systems, and earning prestigious recognition and certifications in programs such as the Occupational Safety and Health Administration's (OSHA) Voluntary Protection Program (VPP), the U.S. Environmental Protection Agency's (EPA) National Environmental Performance Track, and the International Organization for Standardization (ISO) 14001.

Last year was an outstanding year for FE. Credit for the many achievements highlighted in this report can be attributed to a number of senior Departmental managers and employees, but I would like to single out the workers who make their safety and the safety of our neighbors a core value of their job. Their dedication, creativity, and expertise allow me to report on continued progress each year, and I look forward to ongoing success in accomplishing our critical energy security mission while ensuring worker, public, and environmental protection.


 Spencer Abraham
 Secretary
 Department of Energy

A Letter from the Assistant Secretary

December 2003



It is my pleasure to share with you the Office of Fossil Energy's Fiscal Year (FY) 2003 Annual Report on Environment, Security, Safety and Health (ESS&H). We recognize that President Bush and Secretary Abraham have tasked FE with a key role in meeting the energy security needs of this country. Through our research initiatives and the operation of the Strategic Petroleum Reserve, the Northeast Home Heating Oil Reserve, and the Naval Petroleum Reserves, we are meeting the challenge of ensuring a strong energy and economic future for America. In the successful pursuit of this critically important mission, we are committed to ensuring the well being of our employees, their families, and the communities where we work.

We developed the Office of Fossil Energy *Commitment to Environment, Safety and Health* six years ago, and it continues to be the foundation for our ESS&H programs. Our commitment to ESS&H excellence as a core value has been unwavering. In this report, we present the progress that we made in FY 2003, the challenges encountered, and our outlook for the future. I am very proud of our achievements and of the contributions that all of our employees have made in continuing to perform our mission in a manner that protects our workers, the public, and the environment. In response to the events of September 11, 2001, we have made security a top priority and significantly increased our security and emergency preparedness posture by enhancing physical infrastructure, recruiting additional technical expertise and guard force personnel, and emphasizing training and drills.

While making security a top priority, we also have improved significantly our environment, safety and

health performance. We have achieved historically low accident rates. We benchmarked our performance against top performers in the Department as well as industry. Our performance ranks among the "best of the best." Our sites increasingly are being recognized as superior performers by external organizations, including EPA (e.g., National Environmental Performance Track), OSHA (VPP) and ISO 14001. We expanded pollution prevention efforts and reduced our environmental legacy with fewer sites requiring environmental cleanups. We continued to foster the cross-fertilization of innovative practices through DOE's first Integrated Environment, Safety and Health (ES&H) Synergy Workshop, in which representatives from throughout the Department met to exchange information, lessons learned, and practical approaches concerning common safety and health challenges.

In the months ahead, we plan to build upon our success. Our sites will leverage their strengths and experience by collaborating in the pursuit of ESS&H excellence. We will strive to achieve no lost-time accidents, and obtain ISO 14001 certification at all of our field sites. We will continue our efforts to eliminate environmental legacies associated with environmental contamination from historic operations at our sites. We will implement injury prevention practices that address our aging workforce. We will continue to enhance the security at our sites through continued infrastructure improvements, exercises and drills, and employee training. To maximize our overall effectiveness, ESS&H will continue to be an integral part of our business strategy.

We invite you to review our performance and would appreciate any suggestions that you may have for improving our ESS&H programs.

Carl Michael Smith
Assistant Secretary
Office of Fossil Energy

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I. Introduction

Strong environment, security, safety, and health (ESS&H) performance is essential for the Office of Fossil Energy (FE) to achieve its mission of responding to the technological challenges of the Nation's energy and environmental initiatives. To fulfill this mission, we must ensure the highest levels of security at our facilities and provide our employees a safe work environment. As a Federal agency responsible to the public, we must be regarded as exemplary environmental stewards by the communities in which we work and a valuable partner in preparing and responding to local emergencies. In addition, to continue our successful partnerships with leaders of industry on cutting-edge research and development (R&D) projects, we must meet or exceed industry's highest environment, safety, and health (ES&H) standards.

Following Secretary Abraham's mandate to maintain the highest security levels at our facilities, FE implemented, integrated, and increased physical security measures to enhance the protection level for FE personnel, property, and sensitive information, and to heighten overall employee security awareness. This emphasis on security, however, functions hand-in-hand with our continued commitment to strong ES&H programs, as laid out six years ago in FE's *Commitment to Environment, Safety and Health*. This commitment statement continues to serve as our strategic vision for performing our mission in a manner that protects our workers, the public, and the environment, namely to: integrate ES&H into all program activities; strive to eliminate injuries and incidents; promote environmental protection and pollution prevention; adopt the highest applicable standards of performance; ensure management and employee accountability; encourage worker participation; and facilitate public participation while ensuring the highest levels of protection for the physical assets of our sites.

This report summarizes our fiscal year (FY) 2003 performance in responding to the Secretary's commitment to enhance security and accomplish our mission in a secure, safe, and environmentally responsible manner. The report includes information on the National Energy Technology

Laboratory (NETL) including the National Petroleum Technology Office (NPTO) and the Arctic Energy Office (AEO); the Strategic Petroleum Reserve (SPR); the Albany Research Center (ARC); the Naval Petroleum and Oil Shale Reserves (NPOSR) including the Rocky Mountain Oilfield Testing Facility (RMOTC); and FE Headquarters (HQ). More than 2,500 employees, including onsite Federal and site contractors and subcontractors, work at these sites.

Chapter II highlights our key ESS&H accomplishments in FY 2003. Chapter III presents quantitative results of our FE-wide performance for key ES&H performance indicators. Chapter IV outlines some of our key challenges in striving to improve our performance and presents our key initiatives for FY 2004.

The FE Sites

NETL develops new technologies and approaches (e.g., FutureGen, Vision 21, Clean Coal Power Initiative) to ensure safe, clean, and affordable use of coal, oil, and natural gas resources, and to enhance national security against severe energy supply disruptions. With sites located in Morgantown, West Virginia; Pittsburgh, Pennsylvania; Fairbanks, Alaska; and the NPTO in Tulsa, Oklahoma; NETL is a Department of Energy (DOE)-owned and operated laboratory. Its primary functions are to shape, fund, and manage external research, development, and demonstration (RD&D) projects, conduct onsite science and technology research, and support energy policy development and best business practices within the Department.



NETL's FutureGen project.

Key programs at NETL include developing advanced coal, natural gas and oil technologies; conducting RD&D, technology transfer, and training in electricity generation and delivery, fuel

processing and storage, and pipeline delivery systems; and developing and deploying environmental cleanup technologies. NETL continues to be a long-standing participant in developing and demonstrating fossil fuel-based technologies that can be used to develop flexible, market-based protocols as low-cost solutions for reducing global greenhouse gas emissions.

ARC, a DOE-owned and operated materials research laboratory located in Albany, Oregon, offers a broad suite of capabilities and expertise in materials research designed to make the Nation's energy systems safe, efficient, and secure. The Center is recognized for its expertise and capabilities in wear and corrosion; melting, casting, and fabrication of materials; and materials development. ARC researchers provide analyses and solutions to industrial problems that bridge the gap between laboratory studies and real-world applications.



ARC heat-treatment furnace operated by ARC personnel.

SPR is a DOE-owned, contractor-operated complex of four sites that serves as the Nation's first line of defense against an interruption in petroleum supplies. It is an emergency supply of crude oil stored in underground salt caverns along the coastline of the Gulf of Mexico. Headquartered in New Orleans, Louisiana, SPR oversees the operation and management of the four sites: Bayou Choctaw and West Hackberry in Louisiana, and Bryan Mound and Big Hill in Texas. Today, with the capacity to hold 700 million barrels, SPR is the largest emergency oil stockpile in the world. Together, the facilities and crude oil represent more than a \$20 billion national investment. In managing the SPR, FE's overriding objective is to maintain the readiness of the oil stockpile for emergency use at the President's direction. In addition, SPR manages the Northeast Home Heating Oil Reserve, which is comprised of 2 million barrels of home heating oil stored in commercial tank farms in the Northeast. This

supply of oil compensates Northeast customers for interruptions in supply or severe weather conditions.



SPR can hold more than 700 million barrels of oil.

The NPOSr was originally comprised of DOE-owned oil and oil shale facilities in California, Colorado, Utah, and Wyoming, serving the national defense. Today, the Naval Petroleum Reserves in California (NPRC) consists of Naval Petroleum Reserve No. 1 (NPR-1) and Naval Petroleum Reserve No. 2 (NPR-2). In 1998, DOE sold NPR-1 to Occidental Petroleum Corporation for \$3.65 billion. As a condition of the sale, DOE is conducting a comprehensive environmental assessment and will remediate any presale contamination identified by the assessment. NPR-2, for the most part, is leased to various oil companies under 14 lease agreements that are administered by NPRC. NPRC is conducting an assessment pursuant to an initiative to transfer administrative control of NPR-2 to the Department of Interior, Bureau of Land Management. FE's RMOTC continues to operate the Teapot Dome oil production field (formerly referred to as NPR-3), located near Casper, Wyoming. This government-owned and operated oil field also is used by independent oil companies and others to test exploration and production innovations in an actual field setting.



An oil rig at RMOTC.

II. Highlights of FY 2003 ESS&H Accomplishments

In FY 2003, FE continued to enhance its security and emergency response capabilities, in addition to achieving continuous improvement in ES&H programs. Overall, performance trends improved in association with strong worker training and involvement initiatives and external certification and recognition programs.

FE Sites Continue to Make Security a Top Priority

Since the terrorist attacks of September 11, 2001, FE has taken significant steps to ensure that we are prepared to meet the Department's security requirements and protect the national assets entrusted to us. Over the past year, we have focused our efforts in several major areas, including: establishing an Integrated Safeguards and Security Management (ISSM) system; increasing awareness of security through training, drills and exercises; assessing the effectiveness of our programs and taking appropriate corrective actions; improving infrastructure; and assisting other agencies, including the Department of Defense, in homeland security initiatives.

At FE HQ and in the field, significant progress has been made to integrate security effectively into all work activities through a comprehensive approach to protecting material, facilities, and personnel. ISSM consciously integrates security considerations into improved operational procedures. Our overall goal in implementing ISSM is to achieve an integrated security program at all facilities as an accepted part of the overall facility, worker, and public protection design and practice. FE has achieved elements of progress through: (1) maintaining a high degree of contact among security staffs; and (2) encouraging security management and professional staff to interact and work together on reviews, procedure development, facility design, and operations. Examples of site implementation of ISSM include SPR's successful efforts in preparing a comprehensive security plan; briefing all SPR personnel on ISSM; and implementing into security operations a formal, organized process for

planning, performing, assessing, and improving the secure conduct of work in accordance with risk-based protection strategies. The approach provides a mechanism for line and personnel accountability, heightens the awareness of security ramifications during project design, makes employees more aware of their surroundings, and provides opportunities for feedback to enhance ISSM and other SPR programs. In addition, SPR merged the DOE SPR Emergency Section with the Security Division, thereby integrating staff in the same organization to better meet potential threats.



Adversaries traverse perimeter fences in an exercise at SPR to test the results of a vulnerability assessment analysis.

FE also took steps to maintain and increase security awareness in the workplace. We have improved training and communication to enlist the support of all FE Federal and contractor employees to meet security requirements. The focus has been to develop an understanding of the importance of security throughout the FE complex and to increase security awareness among all employees, at HQ and in the field. Examples at FE HQ include issuing a security handbook to Federal and contractor personnel that provides guidance and information on all areas of security, including foreign visits and assignments, badging, clearances, and operations security. In addition, general awareness training was provided to all FE HQ Federal and contractor employees via an innovative, cost-effective, computer-based training program. In response to issuing new Department security requirements, targeted training was provided to those responsible for handling and protecting classified and sensitive, and unclassified information to ensure that information entrusted to FE employees remains secure. Active training programs for all employees, including our security guard forces, are in place at our field sites

as well. For example, NETL completed a job task analysis for the security protection force that was used to develop a security guard training program.

An active assessment program involving inspections from external organizations as well as self-assessments has been implemented to assess the strengths of our security programs and opportunities for improvement. In August 2003, the Department's Office of Headquarters Security Operations conducted a thorough inspection of the FE HQ organization, examining such critical areas as program management, protection program operations, information security, and personnel security. We are proud to report that the inspection team concluded that the FE HQ security program earned the highest possible overall rating.

FE field sites also have assessed their security programs. SPR has conducted a vulnerability analysis at each of the SPR field sites and the Project Office complex, and independently validated the results through field training exercises at each location. When opportunities have been identified, corrective actions have been pursued in a timely manner. At NETL, DOE HQ approved the *Safeguards and Security Periodic Survey Corrective Action Plan*. The majority of planned corrective actions were completed ahead of schedule, including the submission and approval of the *Facility Security Plan*, which serves as the primary basis for NETL's entire security program.



Automated gate and guard station enhances security at ARC entrance.

Infrastructure improvements at our field sites have been pursued actively to reduce or eliminate security vulnerabilities. Activities at NETL included procuring and installing vehicle barriers, and installing an integrated access control system for

the Morgantown, West Virginia, and Pittsburgh, Pennsylvania sites. NETL also has enhanced its foreign visitor procedures and has acquired additional bomb-detection equipment. ARC fully integrated and implemented its heightened security program, which included completing security upgrades (perimeter fencing, guard station, automated gates, and traffic pattern upgrades), and establishing a contracted 24-hour security force onsite.



Clarke Turner of RMOTC with Defense Secretary Donald Rumsfeld in support of the Iraq Reconstruction and Humanitarian Assistance effort.

FE's security efforts have extended beyond our facilities and the Nation's borders. The Office has contributed directly to President Bush's homeland security initiatives, including support for the war in Iraq. FE staff with experience in oil field management, oil storage, and crude oil logistics were detailed to the Department of Defense to support the Iraq Reconstruction and Humanitarian Assistance effort. The employees, all volunteers for this project, served in Iraq in various support positions related to restoring Iraq's oil industry. We are very proud of the sacrifices they made, and are making, on behalf of the Iraqi people and the security of the United States.

FE Sites Complement Heightened Security with Enhanced Emergency Preparedness and Response Capabilities

FE HQ and field sites have continued to expand their emergency response capabilities in the event of a terrorist attack or other emergency situation by updating procedures; conducting training, emergency drills, and exercises; enhancing partnerships with local emergency response

organizations; and working closely with members of the local communities.



SPR West Hackberry Emergency Operations Center during the annual National Preparedness for Response Exercise program.

Developing effective emergency management plans is a cornerstone of effective emergency management. FE HQ issued emergency plans and procedures for our HQ employees, and helped develop HQ-wide basic emergency procedures that were distributed to all of the Department's HQ employees. Each of our field sites developed and updated their *Emergency Readiness Assurance Plans*. The plans describe all aspects of the site emergency management programs and provide a status of available resources for maintaining these response capabilities. Performance metrics, developed by each site, are linked to the plans, with results reported to FE HQ on a quarterly basis. These metrics provide senior management with a snapshot of the status of training, drills and exercises, and hazard assessments.

Emergency preparedness training has been conducted throughout the year at HQ and field sites to ensure that the procedures described in our emergency plans are understood by all employees and implemented effectively, should the need arise. FE HQ helped develop an emergency training video that was used to train FE employees and all Department HQ employees. FE field sites have actively pursued training initiatives as well, and have focused on both employees and emergency response personnel. ARC completed additional training concerning their updated Incident Command System for emergency response personnel. RMOTC provided training to employees with situations tailored specifically to their oil field operations, including

rope and rigging rescue, trenching and excavation, hot-work permits, and fall protection procedures.

Conducting emergency preparedness exercises has played a key role in maintaining an effective emergency management program and improving communications between site emergency response team personnel and local communities. FE HQ technical experts also have participated in the field exercises to ensure that new Departmental requirements have been implemented effectively throughout FE, and to recommend program enhancements.

FE sites conducted numerous exercises using a range of potential scenarios applicable to their specific operations. ARC, which is located in a residential neighborhood near public schools, conducted emergency exercise drills and a full-site exercise that included close coordination and collaboration with the Albany, Oregon, fire and police departments to ensure the protection of our workers and the public.



Emergency responders provide care for a victim during NETL annual emergency exercise.

NETL conducted emergency exercises involving environmental releases of chemicals and biological agents, and conducted tabletop exercises and other training for the emergency response staff. RMOTC conducted an emergency drill that involved the rescue of a worker in a confined space scenario typical of an oil field exploration and production operation. SPR conducted emergency management exercises focused on a simulated oil spill, under the National



SPR boom deployment to contain simulated oil spill during annual National Preparedness for Response Exercise program near the Bryan Mound site.

Preparedness for Response Exercise program. In addition, SPR participated in a number of other exercises, including DOE HQ No-Notice exercises (performed by DOE's Office of Emergency Operations) and Weapons of Mass Destruction exercises, demonstrating how the State National Guard and the SPR could collaborate and share resources to protect and secure SPR employees and physical assets. To ensure that round-the-clock response capability is in place, SPR emergency management staff participated in several unannounced drills focused on off-shift responses to simulated oil spills.



Student and spotter from the Bayou Choctaw SPR site at the annual emergency team re-qualification for fire extinguisher use.

Accurately characterizing the risks and hazards of our operations is key to effective preparedness, and efforts continue in this regard. For example, SPR enhanced its emergency response capabilities by acquiring decision-support software to provide decision makers with real-time

information. Specialists also performed in-house modeling of potential toxics, thermal, and over-pressure impacts of release and ignition scenarios from all cavern wellheads under a number of release conditions to provide site response personnel and local emergency response teams with enhanced decision tools to help evaluate potential hazards. NETL updated its certification processes for emergency response positions, and reexamined and characterized the potential hazards of these jobs.

FE Continues to Improve ES&H Performance Indicators

FE is proud to report a significant improvement over our already-good previous year's performance on nearly every ES&H performance indicator. Several of our FE organizations, including RMOTC, ARC, NPRC, and FE HQ, successfully have gone more than a year without a lost workday. The following summarizes our FY 2003 ES&H performance for a Federal and contractor workforce of approximately 2,500 employees:

- Total Recordable Case (TRC) rate decreased by 23%, continuing a 4-year downward trend.
- Lost Workday Case (LWC) rate decreased by 41%.
- Lost Workday (LWD) rate decreased by 63%.
- The safety and health cost index, which measures the costs associated with accidents and illnesses, decreased by 52% to a 4-year low.
- The number of vehicle accidents decreased by 57%.
- Estimated vehicle costs decreased by 7%.
- The number of environmental spills and releases remained low at 9.
- The number of regulatory violations remained low at 3.
- Sanitary waste generation decreased by 8%.

FE's performance is stronger than DOE-wide performance on all measures. In addition, for all measures, FE's performance is stronger than or equal to DOE's VPP sites, recognized by DOE as the top ES&H performers. These indicators are discussed in more detail in Section III of the report.

FE Implements Environmental Management Systems (EMS), Demonstrates Strong Pollution Prevention Programs, and Streamlines Environmental Requirements

FE continues to implement sound stewardship practices and promote environmental protection and pollution prevention. We continue to adhere to the highest standards applicable to operating our facilities safely and protecting the environment in which we operate. We have instituted EMS to facilitate planning, implementing, evaluating, and improving processes to achieve our environmental goals. We have pursued ISO 14001 certification to demonstrate our progress. In addition, a cornerstone of our environmental program is the effective application of the National Environmental Policy Act (NEPA) to our projects to ensure that a thorough analysis of potential environmental impacts are known and documented to facilitate the decision-making process. We continue to enhance our pollution prevention and waste minimization programs and practices.

FE has made great progress in implementing EMS programs at our field sites and is ahead of schedule for meeting President Bush's requirement for Federal agencies to implement EMS by December 31, 2005 (Executive Order 13148, Greening the Government through Leadership in Environmental Management). Our systems are providing a systematic and structured approach for addressing the environmental consequences of our activities, products, and services. Although several recognized EMS frameworks exist, most, including FE's, are based on the ISO 14001 EMS standard. SPR's integration of NEPA and its EMS into its business processes earned SPR the FE FY 2003 Environment, Security, Safety and Health Achievement Award.

This year, SPR successfully achieved its ISO 14001 triennial recertification as required under the ISO 14001 standard with zero nonconformances identified. SPR received the 2003 National Association of Environmental Professionals' Environmental Excellence award in the Environmental Management category for integrating environmental management with

business systems. In addition, NETL became ISO 14001 certified in August 2003. This certification covers research and development, and site operation activities at Morgantown and Pittsburgh. NETL conducted a range of activities preparing for certification including: developing EMS computer-based training for all NETL personnel; conducting four internal EMS audits; developing an EMS Web site; undertaking a third-party readiness assessment; and completing an onsite readiness review and an EMS audit by the ISO 14001 registrar. Other FE sites, including ARC, continue to make progress toward ISO 14001 and in certifying the highest standards of excellence for their EMS programs. ARC expects to achieve certification in FY 2004, thus continuing to build on this success story throughout FE.



Allen Shoaf, NETL Parsons, is interviewed by John Shideler, foreground, during the ISO registration audit. Rick Wilson of ARC is taking notes to prepare for ARC's ISO audit.

In addition to integrating EMS into our overall management systems, we continue to enhance our application of the NEPA planning process to our projects to ensure that all potential environmental impacts are understood and addressed. At DOE's Executive Safety Summit, Secretary Abraham tasked DOE organizations to enhance the effectiveness of NEPA implementation. In response, FE HQ, together with the sites, actively worked on strategies to tailor NEPA requirements to our sites' activities to streamline and improve the value of the NEPA implementation process.

As one example, FE HQ sponsored a workshop to improve FE's development of Environmental Impact Statements (EIS) under NEPA, drawing on

the expertise and lessons learned from the Department's Office of Environment, Safety and Health (EH), the Office of General Counsel, the Office of Nuclear Energy (NE), the Office of Energy Efficiency and Renewable Energy (EERE), and FE's NETL. One recommendation pursued by FE was to seek delegation of NEPA EIS approval authority. The Assistant Secretaries from FE and EH agreed to pursue a hybrid test case with checkpoints to demonstrate quality performance that, if successful, would lead to future delegation of approval authority for EISs from EH to FE.

In addition to our continuous improvement efforts in NEPA implementation, we also successfully completed several NEPA documents, including EISs and an Environmental Assessment (EA) that allowed us to move forward with research on innovative technologies for the 21st century. For example, the EIS for the Kentucky Pioneer Demonstration Project was finalized, allowing FE and the industrial partner to move forward with the construction and operation of a modified gasifier that will use a blend of coal and refuse-derived fuel to produce power. This project will be a showcase facility employing advanced clean technology that will benefit the environment, provide low-cost power to spur economic growth, and demonstrate how cities can eliminate municipal solid waste by mixing it with coal to produce electricity.



Participants in the FE PPOA conducted at SPR. Pictured from left to right: Suresh Sevak, Scott Landry, Lisa Burns, Mac Eld, Kathy Batiste, Mark Matarrese, Christina Bigelow, Troy Chenier, and Terry Heaton.

Pollution prevention programs are a critical element of our environmental success story. FE sites continued to support pollution prevention and

affirmative procurement programs in 2003, in keeping with President Bush's Executive Orders on pollution prevention and the Department's Pollution Prevention and Energy Efficiency Leadership Goals. FE HQ sponsored pollution prevention opportunity assessments (PPOAs) at the FE sites to identify existing opportunities for further waste reduction and pollution prevention that could provide a positive return on investment. Recycling and affirmative procurement were identified as areas to further reduce overall solid and hazardous waste generation.

Our enhanced recycling programs are resulting in dramatic savings of raw materials and resources, while affirmative procurement programs are driving the purchase of products with recycled content. Many of our sites already have reached their 2005 affirmative procurement goals to increase purchase of EPA-designated items with recycled content to 100%, in keeping with Executive Order 13101. In 2003, NETL continued to implement recycling and reuse programs including certain metals, automated data processing equipment, toner cartridges, mixed office waste, and paper materials (cardboard, magazines, telephone books, and newspaper). NETL initiated a "Green Page" on its intranet that lists products NETL buys, describes how to obtain environmentally friendly products, suggests alternatives to purchasing new products, and provides information on appropriate disposal methods. In addition, NETL's internal newsletter includes the "Green Cupboard," which lists excess storeroom items that are available. These actions give employees an increased awareness of "green" requirements and materials/products that are already available for use onsite.

RMOTC participates in a broad recycling program that involves toner cartridges, cans, cellular telephones, computer equipment, lead-acid batteries, used motor oil, and oil-contaminated soil. ARC's key recycling and reuse programs include corrugated cardboard, mixed paper (including office paper), telephone books, aluminum cans, glass, precious metals, toner cartridges, batteries, oil, PCB ballasts, fluorescent tubes, asphalt, concrete, and soil.

A notable achievement at SPR was the full implementation of its behavioral environmental program, which focuses on ways to change employee behavior and create an organizational culture that embraces pollution prevention. One result was the identification of a streamlined low-impact approach to increase printer and toner cartridge recycling. All exploration and production (E&P) material (almost 2,200 tons) was recycled or otherwise diverted from disposal in FY 2003. SPR is currently evaluating the potential to reuse or recycle demolition debris and excavation material.

In our continuing efforts to expedite schedules and reduce costs, our sites also are continuing to work with environmental regulators to streamline ES&H requirements while still ensuring full compliance. For example, as part of the EPA discharge permit renewal process for SPR's Bryan Mound and Big Hill, the permit requirements were modified to reduce monitoring frequency, thus lowering monitoring costs and reducing the quantities of analytical laboratory wastes to be disposed as hazardous wastes. In addition, the revised permit authorizes the use of plume modeling to support whole effluent toxicity testing, which should reduce the number of required analyses, thereby reducing costs, labor time and waste generation. SPR also implemented an air-quality permitting strategy to facilitate obtaining a construction permit at the Bryan Mound degasification project. The strategy provides criteria for protecting the public from airborne pollutants while still meeting the construction schedule. The site is conducting environmental due diligence assessments of new candidate SPR locations for lease, and compliance reviews and due diligence assessments of waste disposal/recycling contractors.

Reducing Environmental Footprints and Legacies

In full support of Secretary Abraham's goal of "zero environmental legacies," FE is reducing significantly its environmental footprint, while achieving its mission safely. In addition to redressing environmental contamination from historic operations and activities, FE is ensuring that by applying safe and environmentally diligent

practices in present-day actions, we do not create future environmental legacies. To ensure that these environmental activities are cost-effective, we have implemented innovative technologies that increasingly are being recognized and adopted by Federal and State regulators. FE has established excellent working partnerships with the regulators to expedite cleanup and to assist in streamlining requirements, all of which has resulted in reduced costs and accelerated schedules.



Steve Curfman (ARC), Connie Lorenz (FE-7), and Geoff Brown (Oregon's DEQ) discuss a low-stress sampling technique for ARC's groundwater monitoring program.

ARC provides a strong example of employing innovative approaches and technologies, and establishing strong partnerships with the regulators. Along with FE HQ technical assistance, ARC has been developing an extensive groundwater sampling and analysis program designed to determine if groundwater at or near the site has been contaminated by more than 50 years of ARC operations. In designing and implementing this voluntary program, ARC has worked closely with appropriate State regulators, including the Oregon Department of Environmental Quality (DEQ) and the Oregon Department of Human Services. In the investigation of potential soil contamination, ARC used passive soil gas surveys to identify contamination areas quickly and cost-effectively. Regulators were invited onsite to observe the sampling activities, and as a result, have recommended that this protocol be adopted for use by others within the State.

NETL also has used innovative technologies in their air sparge bioremediation activities at the Rock Springs, Wyoming, Oil Shale Retort Remediation Site. Contamination levels continue

to be reduced with the benzene, toluene, ethylbenzene, and xylene (BTEX) compounds showing reductions of approximately 83%. Air sparge/bioremediation activities also are continuing at the Hoe Creek, Wyoming site, where BTEX contaminant levels have been reduced by approximately 98% during active sparging operations and groundwater has been returned to its original class of use. In the near future, a 1-year stability-monitoring period required by the Wyoming DEQ will be initiated before plugging the wells and reclaiming the site.

To reduce oil spills and possible future environmental legacies, RMOTC has installed 2.5 miles of new flowlines and replaced tanks at two tank batteries. They also updated their Spill Prevention, Control and Countermeasure Plan to ensure that spills are minimized. RMOTC is continuing to plug, abandon, and restore well sites as they become uneconomical. The site will be restored to the State of Wyoming standards as the operations are reduced.



Crew at RMOTC removes old oil production tank.

Environmental restoration activities continue at NPRC, which consists of NPR-1 and NPR-2. In 1998, the United States sold its approximate 78% ownership in NPR-1 to Occidental Petroleum Corporation. Under the terms of various sales agreements between DOE, Occidental, and Chevron (owner of the other 22% of NPR-1), DOE is required to conduct a comprehensive environmental assessment of NPR-1 and to remediate any presale contamination identified by the assessment. DOE also is required to conduct limited archaeological data recovery at NPR-1, and to release the results of this effort to the public. NPR-1 is a very large oil field that has been in operation since the early part of the 20th century, long before modern environmental and

cultural resource laws and regulations were passed. The work at NPR-1 is to be completed under the oversight of the California EPA, Department of Toxic Substances Control. Given these circumstances, the work at NPR-1 will require a number of years to complete. In 2003, NPRC continued to negotiate plans for completing a formal risk assessment of NPR-1 with the Department of Toxic Substances Control, Occidental, and Chevron. In addition, 20 large trash scatters were cleaned up, and planning began to remediate four large landfills. The field portion of the data recovery project also was completed.

NPR-2, for the most part, is leased to various oil companies under 14 lease agreements that are administered by NPRC. This includes overseeing/supporting lessee compliance with environmental and cultural resource laws and regulations. In 2003, lessees submitted and NPRC acted on 21 separate projects (mostly development projects) that required consideration of compliance with NEPA, the Endangered Species Act, and the National Historic Preservation Act. In FY 2003, NPRC also completed the field portion of a Phase 2 EA of NPR-2, pursuant to an initiative to transfer administrative control of NPR-2 to the Department of Interior, Bureau of Land Management.

Improvements and Upgrades to Site Infrastructure Lower Risks and Exposures to Workers and Minimize Damage to the Environment

FE sites have aging infrastructure that continues to pose safety and health risks to our workers and could hinder progress in achieving our mission. This past year, our sites have continued to make progress in upgrading their facilities and reducing risks to workers and the public.

At ARC, infrastructure upgrades continued to be a high priority for ensuring worker safety. Projects included the purchasing of air pollution control system/ventilation system upgrades, lead-based paint abatement, upgrades to cutting/material handling equipment, and significant paving upgrades. NETL continued building renovations on structures and systems to address indoor air

quality, ozone-depleting substances issues, and asbestos abatement. To protect employees and the public from airborne pollutants at RMOTC, the site has conducted dust-abatement testing on the gravel roads. A 3.4-mile section of the roadway has been treated successfully with a dust-suppressant solution. Additional treatments are being evaluated. Also, RMOTC is progressing with plans to develop a new biotreatment facility that will discharge treated produced water and provide an abundant water source for wildlife and nearby landowners.



Ventilation system upgrades at ARC.

To address acoustical and optical glare problems that were creating a poor working environment for control room operators, SPR performed physical upgrades of their control rooms, including consolidating control console equipment ergonomically, installing acoustic ceiling tiles, painting, and improving lighting and noise reduction. SPR also replaced temporary scaffolding with additional platforms to access pipeline valves located at raw water and crude oil high-pressure pumps, thereby allowing permanent, safe access to valve actuators for maintenance and operations.



Lead-based paint abatement at ARC.

All FE Sites Continue to Strive for the Highest Standards of Performance through External Certification and Recognition Programs

FE is committed to going above and beyond basic ES&H requirements and achieving national and international certification and recognition of our ES&H programs. FE sites led the way in the Department in moving successfully to achieve external certifications instituted by Federal regulatory agencies and international organizations, such as OSHA's Voluntary Protection Program (VPP), EPA's National Environmental Performance Track and ISO 14001 certification. In addition, FE sites also have received recognition from local communities, State regulators, and professional societies for our safety programs and outstanding performance record.

SPR is the first and, to date, only site in the Department to achieve OSHA VPP certification. Since initial certification in 2001, SPR continues to maintain Star and Super Star level participation in both DOE and OSHA VPP programs. In addition to VPP certification, SPR successfully conducted ISO 14001 recertification audits and achieved its triennial recertification as required under the ISO 14001 standard with zero nonconformances identified. SPR also recently completed a gap analysis on ISO 18001, an international standards program that provides a benchmark of the highest performance standards in safety and health. The results of the gap analysis indicate that SPR's programs are close to the norms established by the ISO 18001 standard.

Our sites continue to receive awards for their strong ES&H performance. For the seventh consecutive year, NETL's Pittsburgh, Pennsylvania site received the Outstanding Achievement Award from the Western Pennsylvania Safety Council (a chapter of the National Safety Council) in recognition of its accident prevention performance in occupational safety. For the 11th consecutive year, NETL's site support contractors received the Outstanding Achievement Award for maintaining the lowest OSHA LWC rates within their Standard Industrial Classification Codes.



The Western Pennsylvania Safety Council annual meeting of members and awards banquet (left to right): Regis Louder, Andy Sivak, and Ed Palko of NETL.

SPR also continues to earn national recognition as a strong ES&H performer as demonstrated by its numerous awards and membership in several certification and recognition programs. SPR received the 2003 National Association of Environmental Professionals Environmental Excellence award in the Environmental Management category for Integrating Environmental Management with Business Systems.



DynMcDermott staff receives Louisiana Quality Foundation Environmental Management Award for New Orleans, Bayou Choctaw, and West Hackberry sites.

SPR also received awards from the States of Louisiana and Texas for their environmental programs, including the Texas Commission on Environmental Quality certificate for 5 years of continuous compliant potable water system operation. Of the four facilities recognized by the Louisiana Quality Foundation for Environmental Excellence in Management Systems, three awards were given to Louisiana SPR sites. SPR also has maintained membership in the EPA Performance Track program for all five of its sites and is profiled on EPA's Performance Track Web site: <http://www.epa.gov/performance-track/program/report.htm>.

FE achieved another major milestone in external recognition of our programs in FY 2003, with NETL becoming only the eighth site in DOE to achieve ISO 14001 certification. ARC continued to make progress toward ISO 14001 and in certifying the highest standards of excellence for their EMS programs. We plan to continue these success stories, with ISO 14001 certification projected for ARC in FY 2004.

Earth Day 2003 was an opportunity to disseminate information to the public about FE's important contributions to the Nation's energy security and environmental protection. FE HQ sponsored an Earth Day exhibit in Washington, DC, entitled "Developing America's Traditional Fuels for a Pollution-Free Future." The exhibit emphasized several environmentally beneficial FE projects spearheaded by President Bush, including research on fuel cells, hydrogen from natural gas, FutureGen, Vision 21, and environmentally friendly technologies for oil and natural gas drilling.

FE Sites Foster Cross-Fertilization of Innovative Practices by Sharing Best Practices and Technical Resources

FE is committed to leveraging its expertise and innovations by establishing real-time outreach mechanisms that communicate best-practice information throughout the FE organization. This was a major initiative identified at DOE's December 2002 Executive Safety Summit, chaired by Secretary Abraham, to improve safety throughout the Department. In accordance with Secretary Abraham's guidance that best practices be shared across DOE, the first FE-NE-EERE Integrated ES&H Synergy Workshop was held in September 2003 at the Idaho National Energy and Environmental Laboratory (INEEL). Representatives from these three Departmental HQ programs, their respective field sites, EH, and the National Nuclear Security Administration, met to discuss effective practices to enhance ES&H performance. The two-day workshop focused on sharing ideas and best practices for improving worker health and safety, including techniques for minimizing frequently occurring injuries. Approaches to instituting an ergonomic workplace that address the needs of an aging workforce were examined, and management systems that reinforce sound

and effective ES&H procedures and practices were presented. Based on the success of this workshop, plans are already underway to hold the second Synergy workshop in the spring of 2004 to further share best practices and technical expertise.



Energy programs hold ES&H Synergy Workshop at INEEL. From left to right: Robert Lange, Associate Director (NE), Beverly Cook, Assistant Secretary (EH), Gary Staffo (EERE), Elizabeth Sellers (INEEL), Craig Zamuda, Director (FE).

Over the past year, FE HQ has established a Best Practices Web site, database, and e-bulletins. FE HQ's development of the FE Best Practices intranet ensures that all FE sites can share best practices and that the searching is easy and real-time. Visitors may submit new best practices online, provide feedback, and seek assistance from FE specialists. A listserv helps staff identify their specific needs, receive applicable e-mail updates in the area in which they are interested, and receive regular e-bulletins. Access to this information is through the FE intranet at <http://esh.fe.doe.gov>.



NETL winners of the annual FE ESS&H Achievement Award. From left to right: Sue Willard (Training Team), Marty Dombrowski (Training Team), Jan Wachter (ES&H Division Director/EMS Representative), Bill Lowry (ES&H Training Coordinator).

In addition, FE HQ's sponsorship of the annual Office of Fossil Energy Environment, Security,

Safety and Health Achievement Award program provides another forum for stimulating innovative best practices and exchanging these innovative practices FE-wide. The program was established in 1995 to encourage and publicize innovation and best practices, and to recognize individuals or teams who have significantly improved the efficiency, reduced the cost, and improved the quality of FE's ESS&H programs.



FE Assistant Secretary Mike Smith shows FE HQ ESS&H Achievement Award Plaque to NETL Site Director Rita Bajura, and John Shages from SPR HQ.

On November 4, 2003, FE's Assistant Secretary Mike Smith presented this year's ESS&H Achievement Award to both NETL for their "Electronic ES&H Job Hazard Survey" and to SPR for "Incorporating an Integrated National Environmental Policy Act and Environmental Management System into Business Processes." In addition to these two achievements, ARC also submitted a strong nomination for "Acquisition and Implementation of Greenware Environmental Management Software." Information on this year's nominations, as well as past years' nominations and award recipients, are available electronically on FE's ES&H intranet site.



SPR winners of the annual FE ESS&H Achievement Award. From left to right: Dan Kelley, Bill Vierling, Mike Huff, Hoot Gibson, Bill Bozzo, Nate Ellis, and Brent Smith. Not pictured: Kathy Batiste.

Strong Training and Worker Involvement Programs Ensure High ES&H Awareness Across All FE Sites

FE continues to stress the importance of worker responsibility and accountability for ES&H performance, and to provide workers with the training they need to meet these expectations. For example, at HQ, FE provided training to managers and supervisors on Federal Employee Occupational Safety and Health requirements and on how to provide a safe workplace for all HQ employees. In addition, first aid and CPR training were offered to employees.

Our sites also have established formal programs to increase worker involvement in improving overall ES&H performance. For example, a key element of SPR's ES&H program continues to be a strong training and behavioral safety and environmental process that increases the overall awareness of ES&H and actively involves front-line employees in improving safety and preventing pollution. This past year, SPR enhanced and updated the Employees' Behavioral Safety Process, significantly improving data collection and analysis, the quality of the observations, and the ability to act on non-enabled objectives. SPR also expanded the program to encompass its environmental activities, with a key focus on creating a culture and a set of behaviors that embrace pollution prevention. Other activities at SPR included establishing performance improvement teams composed of representatives from all stakeholders to improve the Safe Work Permitting process, reduce the number and severity of vehicle accidents, and enhance the efficiency of recycling programs.

RMOTC increased safety awareness and reduced injuries by promoting individual worker safety awareness through daily meetings led by line management on safety topics; weekly safety videos; ergonomics and other employee training; monthly meetings of employees without supervisors to develop lists of safety/security concerns for management; and tracking and trending to identify high-risk areas.



Brett Whitaker of RMOTC crosses a ravine during roping and rigging class.

NETL continued to refine its new integrated Computer-Based Training (CBT) system, designed to provide more efficient management of NETL's training process and information exchange, and to provide managers and employees better access to training records, training needs, and training status. The Electronic ES&H Job Hazard Survey, which is used to determine individual training needs, was revised to include items related to ISO 14001/EMS and NETL's environmental aspects. This system earned NETL the 2003 ESS&H Achievement Award. NETL also offered new CBT courses addressing topics such as Radiological Worker Protection and Operations Security, and updated other courses in the areas of ISO 14001, Hearing Conservation, General Employee Emergency Response, and Bloodborne Pathogens.

To increase worker involvement and awareness, NETL conducts a biweekly review of all Federal and State regulatory changes, new guidance documents, and new compliance information, and posts the information on the NETL intranet. NETL also provides employees access to lessons learned, near misses, and DOE's Occurrence Reporting and Processing System (ORPS) reporting.



ISO Auditor with Dan Cillo and Dan McCollum at NETL.

III. Summary of ESS&H Performance

FE is committed to carrying out our National energy security mission while making consistent, measurable progress toward eliminating injuries, illnesses, and environmental releases. This section demonstrates the progress that we made in FY 2003 in improving our FE-wide ES&H performance using results from key quantitative ES&H indicators. Overall, we significantly improved our strong performance on all the health and safety indicators, and for most indicators, our performance was better than sites that have achieved DOE VPP certification and are recognized as industry top performers.

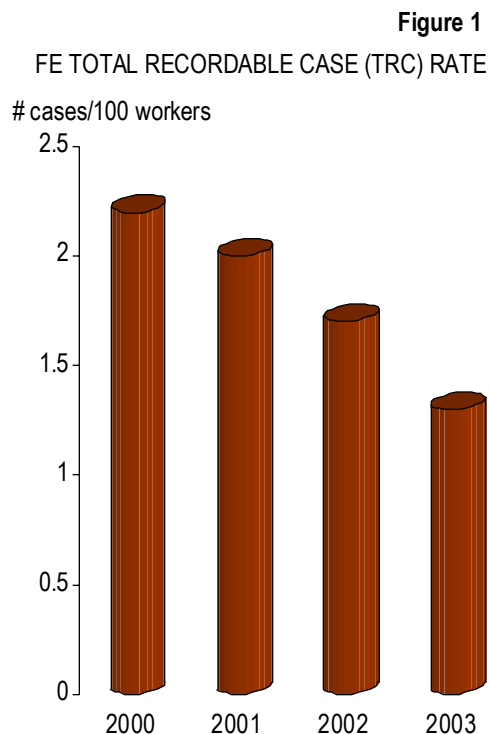
Data related to FE's and DOE's safety and health performance represents all workers, including Federal, contractor, and subcontractor, where available. Safety and health data were obtained from DOE's Computerized Accident/Incident Reporting System (CAIRS). Data on operational occurrences and environmental releases were obtained from DOE's ORPS, and data on regulatory violations, affirmative procurement, and hazardous and sanitary wastes generation were obtained directly from FE sites. The Appendix summarizes site-specific ES&H quantitative performance information, including comparison of FE performance to DOE overall and to DOE VPP sites.

Total Recordable Injuries and Illnesses Rate Decreases by 23%

In FY 2003, FE had a Total Recordable Case (TRC) rate of 1.3, which is a 23% improvement over FY 2002's TRC rate of 1.7 and the fourth consecutive year of improved performance. Notably, FE's TRC rate is lower than the 1.9 rate for DOE sites overall and comparable to DOE VPP's rate of 1.3.

TRCs include injuries and illnesses incurred by Federal and contractor employees that are serious enough to result in medical attention, loss of consciousness, restriction of work activity, or time away from work. The TRC rate accounts for the number of injuries and illnesses that occurs in a

given year, normalized for the hours worked at all FE sites. The basis for this normalization is 200,000 hours worked, which is equivalent to the number of hours worked by 100 workers in a year. This year's rate of 1.3 indicates that 13 of every 1,000 workers were injured at work or had a work-related illness.



Number of injury and illness cases per 100 workers

Source: Computerized Accident/Incident Reporting System

FE's performance improved or remained perfect at all sites. NPRC and FE HQ had no reportable cases in FY 2003, continuing a 5-year trend. ARC reduced its TRC rate by 74% from last year to 1.1, which is better than the performance of DOE VPP sites. NETL reduced its TRC rate to 1.3, equal to that of DOE VPP sites. RMOTC also improved its rate by 79%, decreasing its TRC rate from 7.5 in FY 2002 to 1.6 in FY 2003.

All of the TRCs (33 cases) resulted from injuries, including trips on stairs, minor cuts, and a sprained back incurred during routine daily activities. The root causes of these injuries were: (1) improper lifting techniques, (2) lack of sufficient care in inclement weather conditions, and (3) improper design or materials. Focused employee awareness programs, continued safety training,

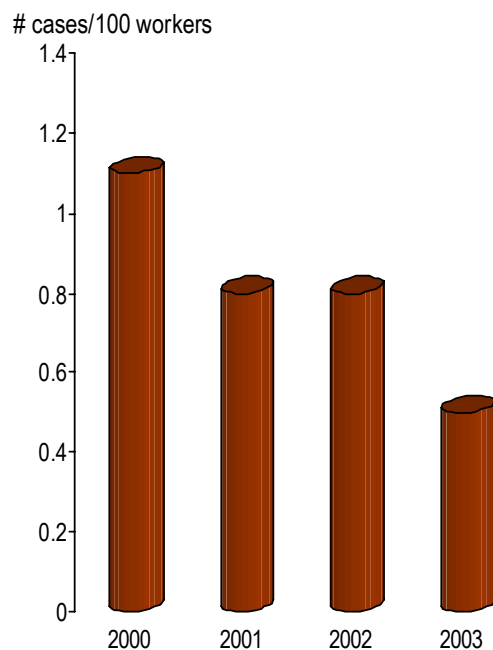
and minor revamping of some procedures should help to decrease further TRCs.

Lost Workday Case Rate Decreases by 41%: Hits Zero at Many Sites

In FY 2003, FE's Lost Workday Case (LWC) rate was 0.5, a 41% decrease from FY 2002, lower than DOE sites (0.7) and slightly lower than DOE VPP sites (0.55). LWCs represent the number of work-related injuries resulting in employees missing days of work or returning to work on restricted duty. This category of injuries has the most serious consequences and cost implications for FE. Other personnel must complete the injured worker's assignments while the worker recuperates, or completion of the work is delayed until the worker returns. As with TRC, the LWC rate is normalized to hours worked. A rate of 0.5 means that 5 of every 1,000 workers suffered a work-related injury or illness that resulted in a lost workday or day of restricted duty. For 2003, the LWC rate of 0.5 was due to the 12 cases that resulted in lost workdays.

Figure 2

FE LOST WORKDAY CASE (LWC) RATE



Number of cases resulting in lost workdays or workdays with restricted duty per 100 workers

Source: Computerized Accident/Incident Reporting System

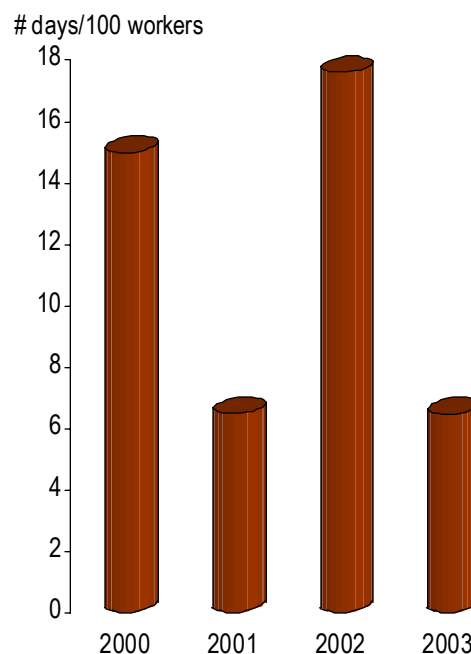
This year, RMOTC had no accidents that resulted in a lost workday. ARC, NPRC, and FE HQ continued a 4-year trend of no accidents that resulted in a lost workday. All of the FE sites, except NETL, performed better than the DOE average and had lower rates than DOE's VPP sites.

Lost Workday Rate Decreases by 63%

In FY 2003, FE's Lost Workday (LWD) rate – the number of LWDs normalized for the number of hours worked – decreased by 63% to 6.5, which was markedly better than both the DOE rate of 25.4 and the DOE VPP rate of 24.34. ARC, RMOTC, NPRC, and FE HQ all had no LWDs. RMOTC's performance was notable, because the site reduced its LWD rate from 89.07 in 2002 to zero in 2003. SPR's LWD rate decreased by 7% to 2.17 in FY 2003, while NETL's rate of 11.7 was 64% lower than last year. It should be noted that in FY 2003, of the 164 reported LWDs that resulted from the 12 LWCs, nearly one-fourth of the workers injured were able to return to work the same day on restricted duty.

Figure 3

FE LOST WORKDAY (LWD) RATE

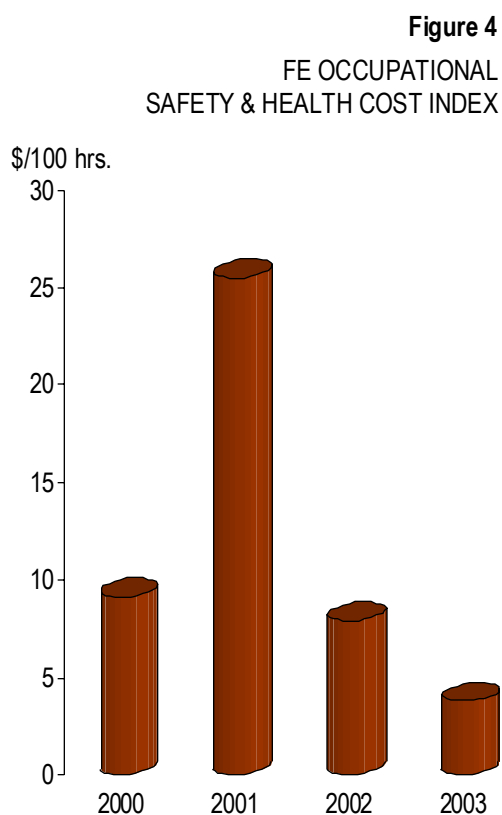


Number of lost workdays or workdays with restricted duty per 100 workers

Source: Computerized Accident/Incident Reporting System

Safety and Health Cost Index Decreases by 52% to Reach a 4-Year Low

FE's FY 2003 occupational safety and health cost index of 3.81 is 52% lower than FY 2002's index and the lowest in 4 years. The FE cost index was 63% lower than the overall DOE cost index and 56% lower than DOE VPP sites. The cost index performance indicator represents the normalized estimate of the costs of FE's injuries that were incurred by the FE sites. The actual cost of all injuries decreased significantly from \$433,000 in FY 2002 to \$193,000 in FY 2003, the lowest injury and illness costs in 5 years.



Estimated cost of injuries and illnesses per 100 work hours
Source: Computerized Accident/Incident Reporting System

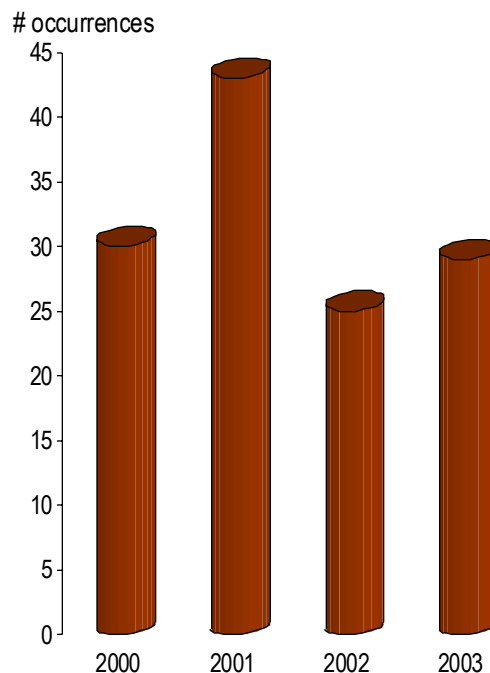
Vehicle Accident Costs Decrease by 7%

Because of the extensive amount of driving that some FE personnel do as a routine part of business operations, the number and costs of vehicle accidents are important indicators of safety and performance at the sites. In FY 2003, FE personnel drove more than 2.8 million miles – 58%

were driven by SPR personnel; 30% by NETL; 11% by RMOTC, and the remaining 1% by ARC.

In FY 2003, FE's 6 vehicular accidents all occurred at SPR and cost \$20,864. The number of accidents declined from 14 to 6 in FY 2003. All of the accidents were attributable to employee inattention, error, or use of improper procedures.

Figure 5
FE OPERATIONAL OCCURRENCES



Number of operational events or conditions that adversely affect or may affect DOE or contractor personnel, the public, property, the environment, or the FE mission

Source: Occurrence Reporting Processing System

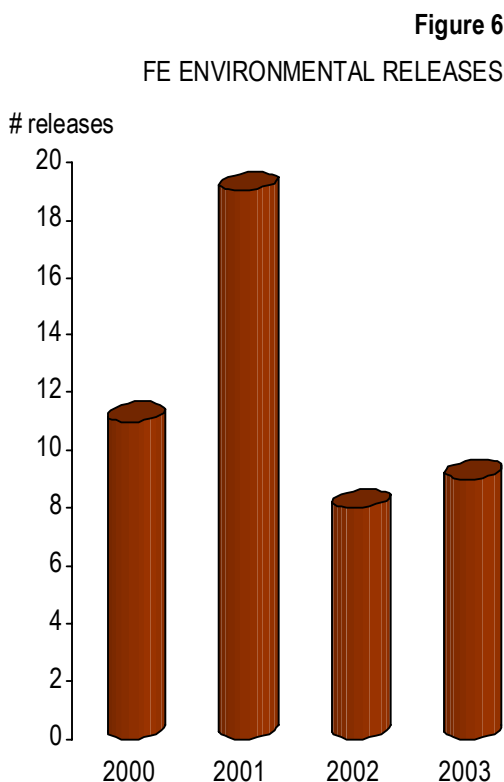
Number of Operational Occurrences Increases by 16%

In FY 2003, there were 29 operational occurrences at FE sites, an increase over last year's 25 occurrences. The operational occurrences performance metric represents the number of operational events or conditions that adversely affect or may adversely affect DOE or contractor personnel, the public, property, the environment, or the DOE mission. FE contributed only 1% of DOE's total operational occurrences.

Experience at the sites was mixed. Both ARC and NETL improved performance over last year, while SPR and RMOTC incurred more occurrences than last year. The major causes of FE's occurrences were related to the weather, use of defective or failed materials, personnel error, or inattention to detail.

Number of Environmental Spills and Releases Remains Low

FE sites reported nine environmental spills and releases in FY 2003, one more than last year. Environmental releases represent the total number of spills, leaks, and discharges of hazardous substances, oil, and regulated pollutants to the environment. FE contributed only 8% to DOE's overall total releases. All FE's releases were at SPR and RMOTC, four and five respectively, and involved leaks of minimal amounts of crude oil, and discharges of brine water and wastewater.



Number of spills, leaks, and discharges

Source: Occurrence Reporting Processing System

Number of Environmental Regulatory Violations Remains Low

In FY 2003, FE received three regulatory violations, all at NETL. The regulatory violations performance metric refers to the total number of violations or citations received from external regulatory agencies, such as EPA or State regulatory agencies, during the fiscal year. Two notices at NETL were for exceeding industrial wastewater discharge limits, which may have resulted from revamped sample techniques. The third violation was for inadequate and improper marking and labeling of hazardous waste materials. In response, NETL has conducted extensive audits of these programs and implemented corrective actions.

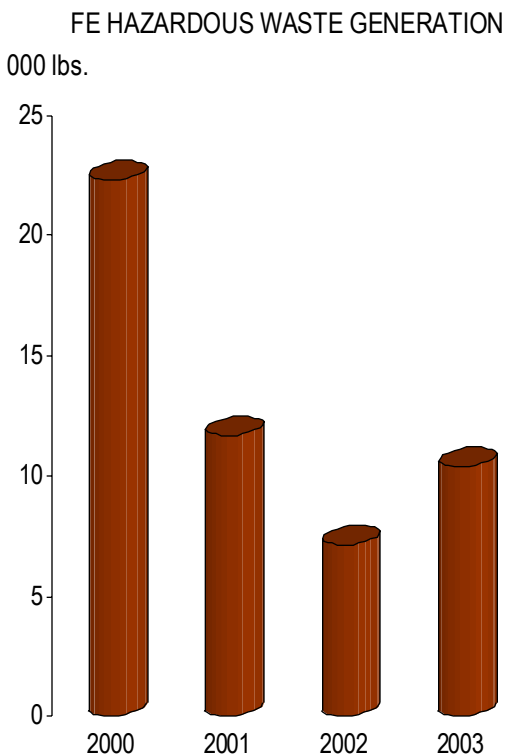
Table 1

FE REGULATORY VIOLATIONS	
Fiscal Year	# of Violations
2000	2
2001	3
2002	3
2003	3

Source: Field Sites

Hazardous Waste Increases by 46%

FE generated 10,412 pounds of hazardous wastes (wastes defined as hazardous under EPA's RCRA regulations) during FY 2003, a 46% increase from last year's total. Increases occurred at both SPR and NETL. NETL's increase was attributed to a 100% increase in the amount of hazardous waste associated with laboratory waste (largely generated from the decommissioning of a research and development building), fluorescent bulbs, and parts washer fluid. ARC decreased the amounts of hazardous waste generated over the past year, and RMOTC, NPRC, and FE HQ generated no hazardous waste. ARC's hazardous waste generation continued to be primarily from cleanup activities, including contaminated soil and legacy waste disposal.

Figure 7

Source: Field sites

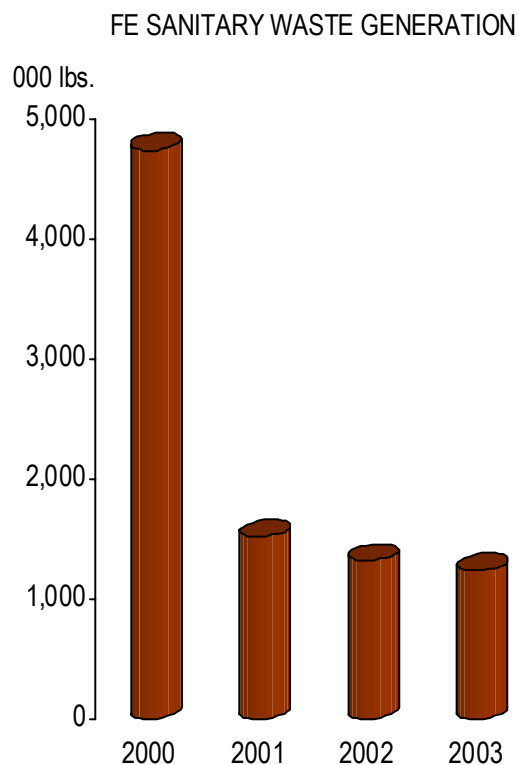
Sanitary Waste Decreases by 8%

FE sites generated 1.2 million pounds of sanitary waste in FY 2003, which is an 8% reduction from last year. Sanitary waste is defined as all wastes generated, excluding RCRA hazardous wastes and recycled wastes. This overall decrease in sanitary waste was in response to the Department's pollution prevention goals. FE sites actively pursued recycling and reuse programs for office materials (e.g., paper, cans, glass, and batteries). In addition, SPR recycled all of its E&P material.

Success on Affirmative Procurement Goals

Federal agencies are required to purchase products with recycled content as designated by EPA. These categories are paper and paper

products, construction, nonpaper office, vehicular, transportation, and landscaping. EPA allows Federal agencies to exclude from their total purchases those purchases where a product with recycled content is not available at a reasonable cost within a reasonable period or does not meet performance standards.

Figure 8

Source: Field sites

FE sites are achieving Secretary Abraham's affirmative procurement goals. SPR has reached 100% of all the affirmative procurement goals. NETL only stocks products with recovered content for all required products in its onsite storeroom. ARC reached its affirmative procurement goals for all product categories this past year, which was a considerable achievement due to the significant paving projects performed as part of infrastructure improvements and security upgrades.

IV. Next Steps in the Pursuit of ESS&H Excellence

We are proud of the progress made over the past year in demonstrating a level of ESS&H performance comparable to or better than the best in the government and the private sector. However, we are not finished in our efforts to establish the highest levels of security and emergency preparedness and a continuous improvement, zero accident and occurrence program. This section summarizes some of the challenges that our organization faces on a corporate-wide basis, and the initiatives we plan to pursue in the year ahead to continue to improve our ESS&H performance. A summary of site-specific initiatives to which we have committed in the FY 2004 budget also is presented below.

KEY CHALLENGES AND INITIATIVES

Fostering a "Learning Organization"

Many of the challenges facing our FE sites are crosscutting. Although each of our sites has the capability to independently address these challenges, it is more efficient and cost-effective to supplement site-specific expertise and knowledge with demonstrated best practices from others in FE, DOE, and the private sector. FE will continue to foster the practice of learning from other organizations and adopting effective ideas in the pursuit of continuous improvement. We will build upon initiatives of FY 2003, including: (1) the first FE-NE-EERE Integrated ES&H Synergy Workshop that was held in September 2003, during which representatives from the three Departmental HQ programs and respective field sites met to discuss effective practices to enhance ES&H performance. The workshop proved so successful that plans are underway to hold a followup workshop in the Spring of 2004; (2) the sponsorship of the ninth FE ESS&H Annual Achievement Award showcasing best practices of the FE organizations; (3) enhancements to the FE Best Practice database based on input from FE, DOE, and private sector organizations, which will be made available to FE and other DOE organizations; and (4) FE HQ sponsorship of

safety seminars with speakers from the Federal government, academia, and the private sector.

Striving for "ZERO" Accidents

Six years ago, FE developed a *Commitment to Environment, Safety and Health*, which established a goal to make consistent, measurable progress toward zero accidents. Continuous and significant progress has been made toward this goal. In FY 2003, we recorded only 12 cases that resulted in lost workdays out of a workforce population of more than 2,500 Federal and contractor employees. In the year ahead, our goal is to achieve zero accidents at all of our FE sites. We believe that accidents are preventable, and we will proactively ensure that potential risks are evaluated adequately and controlled, while we adhere to the highest standards that are applicable to safe operation. As part of a natural evolutionary process, the focus of our efforts is changing over time. Our initial steps focused on establishing appropriate requirements, procedures, and management systems. As we move forward, we will focus attention on worker behavior and adopt behavior safety programs.

Eliminating Environmental Legacies

As a result of decades of operations, residual environmental contamination exists at some offsite and onsite locations. Significant progress has been made over the past several years, and in the coming year, we will continue to further reduce and eliminate any ES&H risks associated with these locations. Cleanups will focus on: (1) cleanup of NPRC, as part of DOE's obligations under a privatization agreement with the State of California; (2) remediation and risk assessment of groundwater contamination at ARC in cooperation with Oregon's DEQ; (3) further cleanup of unused well sites at RMOTC; and (4) ongoing restoration and monitoring at sites where FE previously conducted RD&D projects such as Rock Springs and Hoe Creek, Wyoming. We will continue to work in close partnership with affected communities and the Federal and State regulatory agencies. In addition, FE-7 will conduct a complete inventory of legacy sites and evaluate options for implementing more cost-effective approaches. Our goal is to eliminate historic

environmental legacies and to ensure, through effective environmental management, that current operations do not result in future legacies.

Preventing Injury in an Aging Workforce

With FE's aging workforce (the average age of FE's employees is 51) comes the increased potential for injuries and illnesses due to poor overall fitness and loss of flexibility and strength. Lack of fitness can contribute to cumulative trauma disorders to the back, knees, shoulders, and neck, which commonly comprise more than half of all workers compensation costs. However, general fitness is rarely a component of injury prevention programs. This is a major cause of concern, not only because it affects the health of our workers, but also because it increases health care costs and contributes to decreased productivity. To minimize the effects of the natural aging process, we will emphasize worksite fitness and safety training, and provide our employees with knowledge about fitness and health. Integrating safety and fitness into our daily routine will result in a more fit and productive workforce, and significantly lower compensation costs.

Protecting Our Workers and Meeting DOE Security Needs

FE must be prepared to counter the evolving homeland security threat with improved protection capabilities. We will strive to achieve better efficiency and effectiveness in our security programs, with specific emphasis on protecting our sensitive information, our employees, and our physical infrastructure, equipment, and assets. Infrastructure upgrades, along with increasingly sophisticated drills and exercises involving a range of threats and responses, including biochemical responses, will be pursued.

External Certification and Recognition of ES&H Programs

We will continue to pursue and maintain external certification of our ES&H programs by organizations such as OSHA, EPA, and ISO. FE's SPR sites are the only DOE organizations to achieve OSHA VPP status, and one of the few to become charter members of EPA's National

Environmental Performance and to become ISO 14001 certified. SPR achieved its triennial recertification as required under the ISO 14001 standard, having maintained certification throughout its first 3-year cycle, and achieved a full third-party recertification audit with zero nonconformances. In FY 2003, NETL became only the eighth DOE site to achieve ISO 14001, and in FY 2004, we expect to continue this success story and achieve certification at ARC. By achieving certification, we are meeting President Bush's Executive Order 13148 requirements to establish fully documented and auditable EMS by FY 2005. In addition, we are achieving public and regulatory recognition of our programs through this effort, as well as further improving performance. The experience and lessons learned as part of each organization's pursuit of certification will be passed on to the next FE site so that the benefits accrue to the entire FE organization.

SITE-SPECIFIC INITIATIVES

ARC

- Maintain, evaluate, and enhance the ISMS.
- Enhance records management and equipment calibration procedures and processes as important steps to achieving ISO 14001 certification.
- Increase ES&H monitoring activities, including groundwater sampling/analysis, occupational exposure processing, automated monitoring system upgrades, and ventilation emissions monitoring.
- Update the intranet and Internet Web site to include enhanced ES&H information, including ISO 14001 awareness information.
- Continue to work closely with State regulators and enhance the groundwater monitoring program, including site investigations and evaluation of proposed paths forward. Investigate areas of suspected contamination, including conducting risk analyses and implementing work plans associated with potential cleanup activities.
- Remove all remaining legacy, low-level radioactive wastes, and reduce inventory of legacy, nonradioactive wastes by 20%.

- Continue to upgrade aging equipment, processes, and infrastructure to reduce hazards to employees and the environment (e.g., air pollution control system upgrades, propane tank reduction/consolidation).
- Enhance security infrastructure and emergency response capabilities at the site, and conduct emergency response exercises, including involving external organizations.

NETL

- Maintain ISO 14001 certification.
- Conduct site-wide emergency response exercises.
- Implement infrastructure improvements, including asbestos removal from one of the large administrative buildings at NETL-Pittsburgh, upgrades to gas alarm and fire alarm systems, and chiller replacements to eliminate ozone-depleting substances.
- Continue remediation actions at Hoe Creek and Rock Springs, Wyoming.
- Complete installation of emergency notification system at NETL-Pittsburgh.
- Begin to address the deficiencies in the emergency notification system at NETL-Morgantown.
- Complete first phase of ES&H-related renovations to chemical handling facilities.
- Complete HVAC shutdown/shelter in-place project at NETL-Morgantown, and evaluate for implementation at NETL-Pittsburgh.

RMOTC

- Continue activities to attain EMS program certification.
- Expand behavioral safety programs.
- Continue restoration activities at project site.
- Continue groundwater sampling and analysis program.
- Continue individual solid waste disposal facility closure activities.

SPR

- Continue security enhancements and upgrades at the sites.
- Increase participation of site stakeholders in site emergency response exercises.
- Implement the behavioral environmental program fully to enhance environmental awareness in support of preventing pollution, reducing waste generation, and reducing incident occurrence.
- Continue to evaluate pollution prevention opportunities, implementing those that are appropriate and offer a suitable return on investment.
- Maintain current external certifications and attain additional ones as recognition of outstanding performance (e.g., Clean Texas EMS Incentives Program, ISO 14001 EMS Program, Star Among Stars at all four sites, DOE VPP Super Star status at all four sites).
- Continue to reduce vehicle accidents by improving awareness using site-wide stand downs, CBT training, improved reporting and analysis, employee participation, and behavioral safety observations.
- Maintain and improve the behavioral process by using the new data system, improving trending opportunities, and successfully acting upon recommendations.
- Implement the findings of the Near-Miss Improvement Team.
- Continue to reduce the safety and health cost index by controlling the frequency and severity of injuries using the Safety Management System.
- Reach an accord with the State of Louisiana on the enhanced oiled soil attenuation project.

Appendix. Summary of FE 2003 Performance Measures: Percentage Change from FY 2002 Performance

METRIC	FE TOTAL	FE HQ	SPR	NETL	ARC	RMOTC	NPRC	DOE TOTAL	DOE VPP SITES*
Total Recordable Cases	33 (-30%)	0 (NC)	16 (-16%)	15 (-21%)	1 (-75%)	1 (-80%)	0 (NC)	2,129 (-21%)	404 (-33%)
Total Recordable Case Rate	1.3 (-23%)	0 (NC)	1.3 (-17%)	1.3 (-16%)	1.1 (-74%)	1.6 (-79%)	0 (NC)	1.9 (-5%)	1.3 (-18%)
# Lost Workday Cases	12 (-43%)	0 (NC)	3 (-57%)	9 (-10%)	0 (NC)	0 (-100%)	0 (NC)	837 (-30%)	169 (-33%)
Lost Workday Case Rate	0.5 (-41%)	0 (NC)	0.25 (-58%)	0.8 (-5%)	0 (NC)	0.0 (-100%)	0 (NC)	0.7 (-24%)	0.55 (-15%)
# Lost Workdays	164 (-66%)	0 (NC)	26 (-7%)	138 (-65%)	0 (NC)	0 (-100%)	0 (NC)	28,664 (-1%)	7,483 (-33%)
Lost Workday Rate	6.47 (-63%)	0 (NC)	2.17 (-7%)	11.7 (-64%)	0 (NC)	0 (-100%)	0 (NC)	25.4 (+16%)	24.34 (-66%)
Occupational Safety and Health Cost Index	3.81 (-52%)	0 (NC)	2.04 (-17%)	5.93 (-56%)	1.09 (-74%)	1.58 (-94%)	0 (NC)	10.22 (+8%)	8.71 (+43%)
Estimated Injury & Illness Costs	\$193,203 (-55%)	0 (NC)	\$48,800 (-17%)	\$140,400 (-57%)	\$2,000 (-75%)	\$2,000 (-957%)	0 (NC)	\$22,900,771 (-9%)	\$5,354,200 (+49%)
Estimated Vehicle Costs (e.g., boats and cars)	\$20,864 (-7%)	0 (NC)	\$20,864 (+3%)	\$0 ***	0 (NC)	0 (NC)	0 (NC)	\$416,559 (-6%)	\$278,796 (+10%)
# Vehicle Accidents (including boats and cars)	6 (-57%)	0 (NC)	6 (-54%)	0 ***	0 (NC)	0 (NC)	0 (NC)	125 (-18%)	80 (-10%)
# Operational Occurrences	29 (+16%)	0 (NC)	14 (+17%)	5 (-17%)	0 (-100%)	10 (+150%)	0 (NC)	2,035 (-7%)	939 (-4%)
# Environmental Releases	9 (+13%)	0 (NC)	4 (+100%)	0 (NC)	0 (-100%)	5 (+25%)	0 (NC)	115 (+219%)	43 (+514)
# Regulatory Violations	3 (NC)	0 (NC)	0 (NC)	3 (+200%)	0 (-100%)	0 (NC)	0 (NC)	Not Available	Not Available
Lbs. Hazardous Waste Generated	10,412 (+46%)	0 (NC)	865 (+20%)	6,645 (+100%)	2,902 (-7%)	0 (NC)	0 (NC)	Not Available	Not Available
Lbs. Sanitary Waste Generated	1,238,270 (-8%)	0 (NC)	446,437 (-8%)	414,648 (-14%)	372,185 (-1%)	5,000 (NC)	0 (NC)	Not Available	Not Available
Hours Worked	5,072,833 (-8%)	TBA	2,395,525 (NC)	2,366,974 (-4%)	183,732 (-3%)	126,602 (-4%)	TBA (Not Available)	224,077,995 (-15%)	61,477,089 (-20%)
Near Misses	10 (+43%)	0 (NC)	4 (-33%)	0 (-100%)	0 (NC)	6 ***	0 (NC)	279 (+32%)	101 (Not Available)

Numbers in parentheses represent change from FY 2002

NC = No Change from FY 2002

*** = FY 2002 number equaled zero

*DOE VPP Sites include: PNNL, INEEL, SPR, Hanford, FEMP, Kansas City, Savannah River Site, and West Valley

Office of Environment, Security, Safety and Health

For more information about the U.S. Department of Energy's Office of Fossil Energy programs, please visit www.fossil.energy.gov, call 202-586-6503, or write:

Office of Fossil Energy

U.S. Department of Energy
1000 Independence Avenue, SW
Washington, DC 20585

Albany Research Center

U.S. Department of Energy
1450 Queen Avenue, SW
Albany, OR 97321-2148
www.alrc.doe.gov

Strategic Petroleum Reserve Project Management Office

U.S. Department of Energy
900 Commerce Road East
New Orleans, LA 70123

National Energy

Technology Laboratory

U.S. Department of Energy
P.O. Box 880
Morgantown, WV 26507-0880

or

P.O. Box 10940
Pittsburgh, PA 15236-0940
www.netl.doe.gov

or

National Petroleum
Technology Office
One West Third Street
Tulsa, OK 74103-3519
www.npto.doe.gov

or

Arctic Energy Office
539 Duckering Building
Fairbanks Campus
University of Alaska
Fairbanks, AK 99775

Rocky Mountain Oilfield Testing Center

U.S. Department of Energy
907 N. Poplar, Suite 150
Casper, WY 82601
www.fe.doe.gov/nposr

Naval Petroleum Reserves in California

U.S. Department of Energy
1601 New Stine Road, Suite 240
Bakersfield, CA 93309



For additional copies of this report, please contact:

Craig Zamuda, Ph.D.

Director, Office of Environment,
Security, Safety and Health
Office of Fossil Energy
U.S. Department of Energy
Washington, DC 20585
202-586-6400
Craig.Zamuda@hq.doe.gov



Office of Environment, Security, Safety and Health

FE FY 2003 Site Awards

- FE Environment, Security, Safety and Health Achievement Award – NETL, SPR
- DOE VPP Star of Excellence – Big Hill, West Hackberry, Bryan Mound, SPR
- DOE VPP Superior Star – Bayou Choctaw, SPR
- OSHA VPP Super Star – Bryan Mound, West Hackberry, SPR
- OSHA VPP Star of Excellence – Big Hill, SPR
- Western Pennsylvania Safety Council "Outstanding" Achievement Award – NETL
- ISO 14001 certification – NETL
- ISO 14001 triennial certification – SPR
- DOE P2 Award for Waste Pollution Prevention – SPR
- Louisiana Environmental Management Award – Bayou Choctaw, West Hackberry, New Orleans, SPR
- National Association of Environmental Professionals Environmental Management Award – SPR
- EPA National Environmental Performance Track Charter membership – all SPR sites
- Texas General Land Office for Excellence in Emergency Response – Big Hill, Bryan Mound, SPR
- Texas Commission of Environmental Quality Certificate for Outstanding Performance – Bryan Mound, SPR
- Clean Texas Partner through Performance Track program – SPR